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NOTES FROM PACIFIC COAST OBSERVATORIES.

NOTE ON COMET *a* 1910.

On Monday afternoon, January 17th, at 3 P. M., the following telegram was received from the Harvard College Observatory:—

> Kiel cables DRAKE[1] comet five or ten degrees S. S. W. Sun and approaching Sun, Johannesburg January 17th at and after sunrise. WORSSELL JONES seen two mornings ago in Orange Free State.
>
> (Signed) E. C. PICKERING.

While this dispatch is not as clear as it might be, it evidently announced the discovery of an unusually bright comet which would set shortly before the Sun. This object was looked for on Monday afternoon with the aid of smoked glass to cut off the Sun's rays, but was not seen. Monday evening, about 8:30 P. M., another telegram was received, giving an accurate position of the comet by INNES at Johannesburg. From this it appeared that it had passed the Sun and was moving rapidly eastward and northward.

About 11 o'clock on Tuesday, January 18th, it was easily detected here with the unaided eye about 4° east of the Sun and 1° north of it. Close as it then was to the Sun, it was considerably more conspicuous than *Venus,* which was then more than 30° from the Sun.

The sky was hazy and clouds of varying density hid the comet from time to time. On this account the attempts made to observe its transit with the meridian circle and 4-inch transit instrument failed, thick clouds concealing it as it crossed the meridian.

With a very efficient spectrograph attached to the 12-inch telescope Mr. WRIGHT secured excellent visual observations at intervals from 11 A. M. till after 3 P. M. These showed the spectrum of the nucleus to be continuous, crossed by the bright D lines of sodium vapor, extending out into the coma. The sunlight falling on the object-glass of the 36-inch telescope prevented satisfactory visual observations with that instrument, but with the 6-inch finder several good views of the head of the comet were obtained in the course of the afternoon. The nucleus appeared very small and very bright, with a sharply defined limb or edge, with no gradual shading off into the coma, resembling a very small planetary image as seen under good observing conditions, except that it was much brighter. Surrounding the nucleus and streaming backward, away from the Sun, were nebulous envelopes, which took the general form of an open umbrella, and could be traced about ½°. Clouds constantly interfered, and finally cut off all view of the comet, so that the arrangements made to secure photographic and spectrographic observations after sunset were fruitless.

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[1] Later advices state that this word should have been *great*. A period should probably be inserted after "Jones."

On Wednesday, January 19th, efforts made to see the comet by daylight failed and clouds again prevented observations after sunset. Stormy weather followed, and the comet was not seen again until the evening of January 26th, when the sky cleared suddenly shortly after sunset. On the following nights observations were made under as good conditions as could be expected at so great a zenith distance, and spectrographic, polariscopic, and photographic results of value were secured. Visually, without a telescope, the tail could be traced from 15° to 30° on the evenings of January 26th to January 30th. It was best seen by the writer on the evening of January 27th, when it took the form of a long feathery plume, curving slightly toward the south from a vertical direction, until it reached a point about 15° from the head; then the tail forked, and the curvature toward the south of the main part became, rather abruptly, very much more pronounced. This branch could be traced at least 15° further, until it was lost in the zodiacal light, which, unfortunately, was quite bright. The northern fork could only be traced 2° or 3°. The whole northern edge of the tail, including this fork, was distinctly outlined, and could be represented by a smooth curve, but the southern edge had no well-defined boundary after about the first ten degrees.

It is too soon to say what gain to our knowledge of cometary structure will result from this unexpected visitor. The observations made here up to the present time indicate that we shall learn far more from the spectrograms than from the direct photographs, for the comet seems to be of the quiescent type and has not yet shown any of the rapid and abrupt changes in form that made Comet Morehouse so interesting. The spectrograms obtained have as yet received only a preliminary examination, so that definite statements of results cannot be made, but in a general way it may be said that while the comet was very close to the Sun the sodium D lines were very bright, fading out as its distance from the Sun increased, while the hydro-carbon bands became relatively more intense. In these respects the comet's behavior resembled that of the great comet of 1882.

An orbit was computed by Dr. KOBOLD, of Kiel, Germany, from observations on the 17th, 18th, and 19th of January, but it does not represent the comet's subsequent motion satisfactorily.[1]

That the comet has excited unusual attention is evident not only from the many press items relating to it, but also from the number of letters about it that have been received at this observatory. This is natural enough, for it is the only brilliant one that has been seen in our skies since 1882, and public interest in these bodies has been aroused by the return of Halley's Comet, with which the new one has been confused by many.

It may be added that no better opportunity for preliminary training for the observations to be made on Halley's Comet in the spring could be desired than has been afforded by this comet.

R. G. AITKEN.

February 3, 1910.

COMET *a* 1910.

A series of twenty plates has been taken on Comet *a* 1910 with the Crocker photographic doublet by PAUL W. MERRILL and CHAS. P. OLIVIER. The lenses both have an aperture of six inches and focal lengths of 30.8 inches and 32.6 inches,

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[1] This is also true of two orbits received later.